

Release notes for ENDF/B Development photoat-054\_Xe\_000  
evaluation

**ENDF**  
**B-VII**.dev

October 13, 2016

- checkr Warnings:

1. A previous error halted parsing of the current section  
*MAT=5400, MF= 1, MT=451 (1): Parsing stopped*

```
ERROR(S) FOUND IN MAT=5400, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      160 TO      189
```

- checkr Errors:

1. A variable is outside the allowed ENDF range  
*MAT=5400, MF= 1, MT=451 (0): Variable range*

```
ERROR(S) FOUND IN MAT=5400, MF= 1, MT=451
MOD =      3 OUT OF RANGE      0 -      1      RECORD NUMBER      160
```

2. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=501 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5400, MF=23, MT=501
SECTION 23/501 NOT IN DIRECTORY      RECORD NUMBER      191
```

3. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=502 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5400, MF=23, MT=502
SECTION 23/502 NOT IN DIRECTORY      RECORD NUMBER      945
```

4. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=504 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5400, MF=23, MT=504
SECTION 23/504 NOT IN DIRECTORY      RECORD NUMBER      1253
```

5. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=515 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5400, MF=23, MT=515
SECTION 23/515 NOT IN DIRECTORY      RECORD NUMBER      1294
```

6. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=516 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5400, MF=23, MT=516
SECTION 23/516 NOT IN DIRECTORY      RECORD NUMBER      1328
```

7. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=517 (0): Directory (b)*

ERROR(S) FOUND IN MAT=5400, MF=23, MT=517  
SECTION 23/517 NOT IN DIRECTORY RECORD NUMBER 1381

8. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=522 (0): Directory (b)*

ERROR(S) FOUND IN MAT=5400, MF=23, MT=522  
SECTION 23/522 NOT IN DIRECTORY RECORD NUMBER 1421

9. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=534 (0): Directory (b)*

ERROR(S) FOUND IN MAT=5400, MF=23, MT=534  
SECTION 23/534 NOT IN DIRECTORY RECORD NUMBER 1800

10. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=535 (0): Directory (b)*

ERROR(S) FOUND IN MAT=5400, MF=23, MT=535  
SECTION 23/535 NOT IN DIRECTORY RECORD NUMBER 1821

11. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=536 (0): Directory (b)*

ERROR(S) FOUND IN MAT=5400, MF=23, MT=536  
SECTION 23/536 NOT IN DIRECTORY RECORD NUMBER 1847

12. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=537 (0): Directory (b)*

ERROR(S) FOUND IN MAT=5400, MF=23, MT=537  
SECTION 23/537 NOT IN DIRECTORY RECORD NUMBER 1873

13. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=538 (0): Directory (b)*

ERROR(S) FOUND IN MAT=5400, MF=23, MT=538  
SECTION 23/538 NOT IN DIRECTORY RECORD NUMBER 1899

14. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=539 (0): Directory (b)*

ERROR(S) FOUND IN MAT=5400, MF=23, MT=539  
SECTION 23/539 NOT IN DIRECTORY RECORD NUMBER 1927

15. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=540 (0): Directory (b)*

- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=540 | RECORD NUMBER | 1961 |
| SECTION 23/540 NOT IN DIRECTORY           |               |      |
16. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=541 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=541 | RECORD NUMBER | 1994 |
| SECTION 23/541 NOT IN DIRECTORY           |               |      |
17. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=542 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=542 | RECORD NUMBER | 2034 |
| SECTION 23/542 NOT IN DIRECTORY           |               |      |
18. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=543 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=543 | RECORD NUMBER | 2071 |
| SECTION 23/543 NOT IN DIRECTORY           |               |      |
19. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=544 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=544 | RECORD NUMBER | 2106 |
| SECTION 23/544 NOT IN DIRECTORY           |               |      |
20. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=545 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=545 | RECORD NUMBER | 2146 |
| SECTION 23/545 NOT IN DIRECTORY           |               |      |
21. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=546 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=546 | RECORD NUMBER | 2182 |
| SECTION 23/546 NOT IN DIRECTORY           |               |      |
22. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=547 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=547 | RECORD NUMBER | 2244 |
| SECTION 23/547 NOT IN DIRECTORY           |               |      |
23. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=550 (0): Directory (b)*

- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=550 | RECORD NUMBER | 2308 |
| SECTION 23/550 NOT IN DIRECTORY           |               |      |
24. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=551 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=551 | RECORD NUMBER | 2356 |
| SECTION 23/551 NOT IN DIRECTORY           |               |      |
25. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=23, MT=552 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=23, MT=552 | RECORD NUMBER | 2404 |
| SECTION 23/552 NOT IN DIRECTORY           |               |      |
26. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=27, MT=502 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=27, MT=502 | RECORD NUMBER | 2454 |
| SECTION 27/502 NOT IN DIRECTORY           |               |      |
27. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=27, MT=504 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=27, MT=504 | RECORD NUMBER | 2507 |
| SECTION 27/504 NOT IN DIRECTORY           |               |      |
28. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=27, MT=505 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=27, MT=505 | RECORD NUMBER | 2561 |
| SECTION 27/505 NOT IN DIRECTORY           |               |      |
29. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5400, MF=27, MT=506 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5400, MF=27, MT=506 | RECORD NUMBER | 2686 |
| SECTION 27/506 NOT IN DIRECTORY           |               |      |

• fudge-4.0 Warnings:

- generic warning message  
*reaction label 0: Xe + gamma [coherent] / Product: gamma (Error # 0): Warning*  
  
WARNING: coherentScattering is not a valid distribution component for 2-body reaction
- FIXME: Generic fudge unimplemented message  
*reaction label 0: Xe + gamma [coherent] / Product: gamma (Error # 2): Generic unimp (c)*

WARNING: Checking not yet implemented for pointwise type data

3. generic warning message  
*reaction label 1: Xe + gamma [incoherent] / Product: gamma (Error # 0): Warning*

WARNING: incoherentScattering is not a valid distribution component for 2-body reaction

4. FIXME: Generic fudge unimplemented message  
*reaction label 1: Xe + gamma [incoherent] / Product: gamma (Error # 2): Generic unimp (c)*

WARNING: Checking not yet implemented for piecewise type data

5. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule  
*summedReaction label 21: total (Error # 0): Sumrule*

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 99.99%

6. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule  
*summedReaction label 23: photoelectric absorption (Error # 0): Sumrule*

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 71.44%

• fudge-4.0 Errors:

1. Calculated and tabulated thresholds don't agree  
*reaction label 0: Xe + gamma [coherent] / Cross section: (Error # 0): Threshold mismatch*

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

2. 2-body reaction not in center-of-mass frame  
*reaction label 0: Xe + gamma [coherent] / Product: gamma (Error # 1): 2-body not in COM*

WARNING: 2-body reaction not in center-of-mass frame!

3. Calculated and tabulated thresholds don't agree  
*reaction label 1: Xe + gamma [incoherent] / Cross section: (Error # 0): Threshold mismatch*

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

4. 2-body reaction not in center-of-mass frame  
*reaction label 1: Xe + gamma [incoherent] / Product: gamma (Error # 1): 2-body not in COM*

WARNING: 2-body reaction not in center-of-mass frame!

5. Energy range of data set does not match cross section range  
*reaction label 1: Xe + gamma [incoherent] / Product: gamma / Distribution incoherentScattering - piecewise: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (0.0 -> 1000000000.0) vs (1.0 -> 1e+11)

6. Calculated and tabulated thresholds don't agree  
*reaction label 2:  $e^- + e^+ + Xe$  [electron field] / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 2.044e6 eV!
7. Calculated and tabulated thresholds don't agree  
*reaction label 3:  $e^- + e^+ + Xe$  [nuclear field] / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!
8. Calculated and tabulated thresholds don't agree  
*reaction label 4:  $e^- + Xe1s1/2$  / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 34556. eV!
9. Calculated and tabulated thresholds don't agree  
*reaction label 5:  $e^- + Xe2s1/2$  / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5416.9 eV!
10. Calculated and tabulated thresholds don't agree  
*reaction label 6:  $e^- + Xe2p1/2$  / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5103.9 eV!
11. Calculated and tabulated thresholds don't agree  
*reaction label 7:  $e^- + Xe2p3/2$  / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4774.7 eV!
12. Calculated and tabulated thresholds don't agree  
*reaction label 8:  $e^- + Xe3s1/2$  / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1122. eV!
13. Calculated and tabulated thresholds don't agree  
*reaction label 9:  $e^- + Xe3p1/2$  / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 989.47 eV!
14. Calculated and tabulated thresholds don't agree  
*reaction label 10:  $e^- + Xe3p3/2$  / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 926.5599999999999 eV!
15. Calculated and tabulated thresholds don't agree  
*reaction label 11:  $e^- + Xe3d3/2$  / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 690.91 eV!
16. Calculated and tabulated thresholds don't agree  
*reaction label 12:  $e^- + Xe3d5/2$  / Cross section: (Error # 0): Threshold mismatch*  

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 677.52 eV!

17. Calculated and tabulated thresholds don't agree  
*reaction label 13:  $e^- + Xe4s1/2$  / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 208.37 eV!
18. Calculated and tabulated thresholds don't agree  
*reaction label 14:  $e^- + Xe4p1/2$  / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 160.69 eV!
19. Calculated and tabulated thresholds don't agree  
*reaction label 15:  $e^- + Xe4p3/2$  / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 147.98 eV!
20. Calculated and tabulated thresholds don't agree  
*reaction label 16:  $e^- + Xe4d3/2$  / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 69.84 eV!
21. Calculated and tabulated thresholds don't agree  
*reaction label 17:  $e^- + Xe4d5/2$  / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 67.78 eV!
22. Calculated and tabulated thresholds don't agree  
*reaction label 18:  $e^- + Xe5s1/2$  / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 23.61 eV!
23. Calculated and tabulated thresholds don't agree  
*reaction label 19:  $e^- + Xe5p1/2$  / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 12.35 eV!
24. Calculated and tabulated thresholds don't agree  
*reaction label 20:  $e^- + Xe5p3/2$  / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 10.96 eV!
25. Calculated and tabulated thresholds don't agree  
*summedReaction label 21: total / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!
26. Calculated and tabulated thresholds don't agree  
*summedReaction label 22: pair product / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!
27. Calculated and tabulated thresholds don't agree  
*summedReaction label 23: photoelectric absorption / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 10.96 eV!



- **xsectplotter** Warnings:

1. Encountered runtime warning in xsectplotter or Fudge or matplotlib  
*Error: RuntimeWarning*

```
stderr while processing crossSection
```

```
/usr/local/lib/python2.7/site-packages/matplotlib-1.3.1-py2.7-linux-x86_64.egg/matplotlib/pyplot.py:412: RuntimeWarning: ... [3 more lines]
```